

Trib. **Zonitini**Group *Derideides*.*Deridea*, *Iselma*.Group *Zonitides*.*Stenodera*, *Palaestra*, (*Tmesidera*), *Cochliophorus*, *Zonitis*, (*Euzonitis*), *Zonitoides*.Group *Nemognathides*.*Gnathium*, *Nemognatha*, *Leptopalpus*.Trib. **Horiini**Group *Tricraniides*.*Tricraniodes*, *Tricrania*.Group *Horiides*.*Cissites*, (*Synhoria*), *Horia*.

The Genus *Copestylum*.

By J. M. ALDRICH, Moscow, Idaho.

The genus under consideration belongs to the dipterous family Syrphidæ, and is closely related to *Volucella*, an immense assemblage of mostly rather large flies having a Southern range. The only generic character which sets off *Copestylum* is the structure of the arista, which is covered, especially above and toward the apex below, with closely set, short, black, flattened hairs, giving it under the microscope a little the appearance of a black ostrich plume. In *Volucella* the arista is of ordinary structure, more or less plumose with the usual long, thin, tapering hairs.

The first member of this genus to become known to science was *marginatum*, described as a *Volucella* by Say (a). His material was from Mexico, and from the wording must have consisted of a single specimen of each sex.

Macquart (b) described the genus and founded it upon the species *flaviventris*, from Colombia. He mentions two females.

Osten Sacken (c) recognized Say's species (as a *Volucella*) from Waco, Texas, in a single specimen; in (d) he correctly places *marginatum* under the genus *Copestylum*, and suggests that *flaviventris* may be a synonym.

Williston (e) puts Macquart's species as a synonym of *mar-*

ginatum, of which he identified thirty specimens from Texas, Arizona, Montana and California. The specimens showed great variation; nine from Montana might be distinct, of smaller size; one variety, *lentum*, he designates by a name. A single additional specimen from the Isthmus of Tehuantepec, he believed to be distinct and named it *C. limbipennis*. In (f) he identifies additional specimens of *marginatum* from Central America, and of both sexes of *limbipennis* from three Mexican localities. Later in (g) he records the rearing of *marginatum* from larvae boring in the tissues of *Opuntia*, a common cactus of the arid regions.

From this summary of Williston's work on the genus it will be seen that he examined large numbers of specimens, probably as many as sixty, and could make out but two species.

Giglio-Tos, the Italian entomologist, who worked for some years on Mexican Diptera, described two new species in (h), which he called *simile* and *parvum*; later in the same year (i) he reprinted these descriptions and separated a third species, *distinctum*, from *marginatum* on account of the smaller size of the latter (with other slight differences); he redescribes *marginatum*, and figures both it and *distinctum*. All four of his species were collected at Tehuacan, Mexico, and *simile* also at Meztillan. He had 7 *marginatum*, 11 *distinctum*, 2 *simile*, 1 *parvum*.

In (j) Mr. C. H. Tyler Townsend reported on a lot of Diptera from Lower California, among which he identified a number of species of *Volucella*, mostly new, but mentioned no species of *Copestylum*. His type material was deposited in the collection of the California Academy of Sciences at San Francisco, where I made a careful examination of it only a few weeks before it was entirely destroyed by the great fire. To my surprise, I found that his *Volucella estebana*, *lucasana*, *sodomis* and *tolteca* were all *Copestylum*s. The specimens of *tolteca* were not the types, and in looking up the original description in another paper (k), I found another series of species, *fax*, *inops* and *tolteca*, so connected together in the descriptions as to leave scarcely a doubt that they are all *Copestylum*s. The

first one of the series, *far*, is said to have the "arista thickly plumose above, and a little on apex below," which corresponds with the expression used in describing *estebana*—"arista densely short plumose above." The three species are closely interwoven in the descriptions, and the third I found to be a *Copestylum* by examining material identified by Townsend himself; hence I feel certain that *far* and *inops* may be added to the list to be transferred to *Copestylum*. In (1) Townsend for the first time in print identifies a species of *Copestylum*, mentioning a specimen of *marginatum* from New Mexico. All of Townsend's species are based on meagre materials—in fact, he had seven species out of a total of eleven specimens.

Snow (m) placed all three of Giglio-Tos's species as doubtful synonyms of *marginatum*.

In my catalogue (n), I allowed *limbipennis*, *parvum* and *simile* to stand as valid species, not that I had any opinion on the subject, but merely giving them the benefit of the doubt. *Distinctum*, however, seemed to me to come well within the range of variation of *marginatum*, so I placed it as a synonym of that species. I had not at that time examined Townsend's material, so I put all his species in the genus to which he assigned them.

The specific names to be considered under the genus *Copestylum* appear to be the following: *Marginatum* of Say; *flaviventris* of Macquart; *limbipennis* of Williston; *distinctum*, *parvum* and *simile* of Giglio-Tos; *estebana*, *lucasana*, *sodomis*, *tolteca*, *inops* and *far* of Townsend.

Bigot does not mention any *Copestylums*, and among the numerous descriptions of *Volucellas* given by him I have searched in vain for any mention of an antennal character indicating a *Copestylum*; still the omission signifies little, and it is not unlikely that an examination of his types will disclose several species of this genus.

We are now at the threshold of the main question, which is, how many species of *Copestylum* actually exist, and which names apply to them? But here I regret to say I must stop. I have gathered up the threads so as to simplify the problem

a little, but the material within my reach is far too meagre to enable me to form a satisfactory conclusion.

Probably Melander and Brues examined more material in the genus than has been accessible to any other dipterists, as in their two years' stay in Texas they collected about a hundred specimens, most of which they distributed in exchange. Out of this number, a single one was classified as *lentum*, all the rest as *marginatum*. I am indebted to Prof. Melander for this suggestive item.

- (a) Say, Jour. Acad. Nat. Sci. Phil., VI, 167, 1829; reprinted in Complete Works, II, 360.
- (b) Macquart, Dipt. Exotiques, Suppl. I, 252 (sep. 124), 1846; pl. X, fig. 16.
- (c) Osten Sacken, Western Dipt., 333, 1877.
- (d) Osten Sacken, Catalogue of N. A. Diptera, 2d edition, 1878, 130.
- (e) Williston, Synopsis N. A. Syrphidae (Bull. 31, U. S. Natl. Mus.), 151, pl. VII, f. 1; 1886.
- (f) Williston, Biologia Cent. Amer., Dipt. III, 56, 1891.
- (g) Williston, Entomological News, II, 162, 1891.
- (h) Giglio-Tos, Boll. Mus. Zool. Anat. Comp. R. Univ. Torino, VII, No. 123, p. 2; 1892.
- (i) Giglio-Tos, Ditteri del Messico (Mem. R. Acad. Sci. di Torino, ser. II, tom. XLIII, 1892), 40-43, pl. I, f. 14, 15.
- (j) Townsend, Proc. Cal. Acad. Sci., 2d ser., IV, 612-616, 1895.
- (k) Townsend, Trans. Amer. Ent. Soc., XXII, 42-45, 1895.
- (l) Townsend, Psyche, 1898, 267.
- (m) Snow, Suppl. List N. A. Syrph. (Kans. Univ. Quart., III, 1895), 257.
- (n) Aldrich, Catalogue N. A. Diptera (Smithsonian, 1905), 376.

DR. EDWIN C. VAN DYKE and DR. F. E. BLAISDELL, of San Francisco, expect to make a collecting trip to the high middle Sierras of California. Coleoptera are warned to steer clear of the district they visit.

THE LAKE LABORATORY of the Ohio State University, located on Cedar Point, near Sandusky, will open June 20, and close July 29. The laboratory is close to the waters of Lake Erie and Sandusky Bay. There will be a course on entomology. Any information may be obtained from Prof. F. L. Landacre, Ohio State University, Columbus, Ohio.